

## CLAIMS

Now, therefore, the following is claimed:

1. A forward error correction communication system, comprising:  
a forward error correction (FEC) manager configured to receive, from a data stream, a first string of successive characters and a second string of successive characters; the FEC manager further configured to define a plurality of FEC code words based on the data stream and to interleave the characters of the first and second strings such that each of the FEC code words comprises characters from both of the strings; and  
a transmitter configured to transmit the FEC code words to a remote receiver.
2. The system of claim 1, wherein the transmitter transmits the FEC code words such that each character of the first string is separated from each of the other characters of the first string by at least one character of the second string.
3. The system of claim 1, wherein the transmitter transmits a first portion of one of the FEC code words before at least one character of a second portion of the one FEC code word is received by the FEC manager.
4. The system of claim 1, wherein the transmitter transmits the FEC code words such that the characters are transmitted by the transmitter in the same order that the characters are received by the FEC manager.

5. The system of claim 1, wherein the FEC manager is configured to define the FEC code words such that each character of the first string is assigned to a different one of the FEC code words and each character of the second string is assigned to a different one of the FEC code words.

6. The system of claim 1, wherein each of the FEC code words comprises a data portion and a checksum portion, the system further comprising a receiver configured to use the checksum portion of a corrupted FEC code word to recover a character in the data portion of the corrupted FEC code word.

7. The system of claim 1, wherein the FEC manager comprises a buffer having a plurality columns, the FEC manager configured to store each character of the first string in a first buffer column and each character of the second string in a second buffer column.

8. The system of claim 7, wherein the FEC manager is configured to output the characters of the first string from the first column and to then output the characters of the second string from the second column.

9. The system of claim 8, wherein the FEC manager is configured to output at least one of the characters of the first string from the first column before the FEC manager stores at least one of the characters of the second string to the second column.

10. A forward error correction system, comprising:

a transmitter; and

a forward error correction (FEC) manager configured to receive a data stream and to define a plurality of FEC code words based on the data stream, each of the FEC code words comprising a data portion and a checksum portion that may be used to recover at least one character of the data portion, the FEC manager configured to interleave characters of the FEC code words such that the FEC code words are transmitted, by the transmitter, to a remote receiver in an interleaved fashion, the FEC manager configured to provide characters from each of the FEC code words to the transmitter before a plurality of characters to be assigned to each of the FEC code words has been received by the FEC manager.

11. The system of claim 10, wherein the transmitter transmits the FEC code words such that the characters of the FEC code words are transmitted in the same order that the characters are received by the FEC manager.

12. The system of claim 10, wherein the data stream comprises a first string of successive characters and a second string of successive characters, and wherein the FEC manager defines the FEC code words such that each of the FEC code words comprises characters from both of the strings.

13. The system of claim 10, wherein the FEC manager is configured to interleave the characters across each of the FEC code words.

14. A forward error correction (FEC) transmission system, comprising:  
means for receiving a data stream;  
means for defining a plurality of FEC code words based on the data stream and  
for interleaving characters of the FEC code words; and  
means for transmitting at least a portion of each of the FEC code words to a  
receiver before any of the FEC code words has been completely defined by the  
defining means.

15. The system of claim 14, wherein the transmitting means transmits  
characters from each of the FEC code words to the receiver before a plurality of  
characters to be assigned to each of the FEC code words has been received by the  
receiving means.

16. The system of claim 14, wherein the defining means stores the  
characters to a buffer and interleaves the characters across the FEC code words when  
storing the characters to the buffer.

17. The system of claim 14, wherein the data stream comprises a first  
string of successive characters and a second string of successive characters, and  
wherein the defining means defines the FEC code words such that each of the FEC  
code words comprises characters from both of the strings.

18. The system of claim 17, wherein the transmitting means transmits the  
FEC code words such that each character of the first string is separated from each of  
the other characters of the first string by at least one character of the second string.

19. A forward error correction (FEC) method, comprising the steps of:

receiving a data stream, the data stream comprising a first string of successive characters and a second string of successive characters;

defining a plurality of FEC code words based on the data stream in an interleaved fashion such that each of the FEC code words comprises characters from both of the strings; and

transmitting the FEC code words to a remote receiver.

20. The method of claim 19, wherein the transmitting step is performed such that each character of the first string is separated from each of the other characters of the first string by at least one character of the second string.

21. The method of claim 19, wherein the transmitting step is performed such that the characters are transmitted in the same order that the characters are received in the receiving step.

22. The method of claim 19, wherein the defining step comprises the steps of:

assigning each character of the first string to a different one of the FEC code words; and

assigning each character of the second string to a different one of the FEC code words.

23. A forward error correction (FEC) method, comprising the steps of:

receiving a data stream;

defining a plurality of FEC code words based on characters received via the receiving step;

interleaving the FEC code words; and

transmitting the interleaved FEC code words to a remote receiver, wherein the transmitting step comprises the step of transmitting characters from each of the FEC code words to the receiver before a plurality of characters to be assigned to each of the FEC code words has been received via the receiving step.

24. The method of claim 23, further comprising the step of buffering each of the characters of the FEC code words in a buffer, wherein the transmitting of characters from each of the FEC code words step is performed before any of said plurality of characters has been stored to the buffer.

25. The method of claim 23, wherein the transmitting the interleaved FEC code words step comprises the step of transmitting each of the characters to the receiver in the same order that the characters are received in the receiving step.

26. The method of claim 23, further comprising the step of interleaving the characters across each of the FEC code words.

27. The method of claim 23, wherein the data stream comprises a first string of successive characters and a second string of successive characters, and wherein the defining step is performed such that each of the FEC code words comprises characters from both of the strings.